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Macroeconomic Adjustment and Growth

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Fixed Parity of the Exchange Rate and Economic Performance in the CFA Zone

A Comparative Study

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and
Nader Majd

Economic performance in the CFA (franc) zone was weaker than in non-CFA countries in the late 1980s for exports, investment, savings, and output growth. The CFA fared better only in inflation. And in the long run, while it performed better for exports, savings, and investment, it failed to distinguish itself in terms of economic growth.

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This paper — a product of the Macroeconomic Adjustment and Growth Division, Country Economics Department — is part of a larger effort in the Department to study macroeconomic adjustment and economic performance in the CFA zone. Copies are available free from the World Bank, 1818 H Street NW, Washington DC 20433. Please contact Victoria Barthelmes, room N11-025, extension 39175 (46 pages). January 1992.

Elbadawi and Majd compare economic performance in the CFA (franc) zone with the economic performance in similar countries outside the CFA zone in recent years.

The results of their model estimates indicate that the competitive position for CFA members was weaker in the second half of the 1980s than in the first half and weaker than in non-CFA countries — in terms of output growth as well as the performance of exports, investment, and savings. The exception was domestic inflation: the CFA fared better on that front.

Results for a longer-term comparison (of the 1970s and the 1980s) are somewhat mixed. The CFA zone performed better than the others in exports, domestic savings and investment, and inflation — but failed in the long run to distinguish itself in terms of economic growth.

Elbadawi and Majd use a modified-control-group approach to compare changes in macroeconomic indicators in the CFA countries with those in countries elsewhere in Sub-Saharan Africa and similar low-income developing countries. They control for initial conditions, changing exogenous internal and world environment, and policy stance.

Their approach allows for a formal testing of whether zone membership is a random choice. The implication of randomness (that there is no selection bias) is that the CFA-zone economies would have performed the same as the rest of Sub-Saharan Africa, for example, if there had been no zone. Their results show the assumption of randomness to be valid only for GDP growth and inflation. For other indicators (the ratios of savings, investment, and exports to GDP), the decision to participate in the zone is assumed to be endogenous and is related to the expectation of improved economic performance. Therefore, in estimating the zone's effects on those three indicators, Elbadawi and Majd corrected for the ensuing "sample selectivity" bias by estimating the status indicator (participation versus nonparticipation) with a probit model.

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I: INTRODUCTION

"The thirteen sub-Saharan African countries of the franc zone have conventionally been associated with economic stability attributed to a fixed exchange rate with France and guaranteed convertibility of their currency, the CFA Franc. But the franc zone economies have experienced economic declines in recent years and most countries have had to adopt economic austerity programmes. Farmers have protested against lowered crop purchase prices while public sector workers have been antagonized by wage cuts and freezes. Most of the thirteen countries enter the 1990s both politically and economically unstable."[1]

Such a gloomy [re]assessment of conditions in the CFA franc zone reflects a widely shared concern in the academic and policy debates over the severe economic decline in the zone during the second half of the 1980s, and the apparent difficulties at arresting, much less reversing, the decline, {see Devarajan and de Melo (1990)}. These conclusions are in sharp contrast with the earlier results which attributed the long-run growth of output and investment (especially foreign) in the CFA franc zone to the monetary stability and low inflation imparted by the fixity of the exchange rate (CFA 50 = FF 1), the built-in restraints on expansive fiscal and monetary policies, and the convertibility of the CFA franc, e.g., Mundell (1972), Guillaumont and Guillaumont (1984), Devarajan and de Melo (1987), and Guillaumonts and Plane (1988), among others.

The sharp reversals of the zone over the last two decades is a tale of economic interdependence, in a changing world economic environment, and a story of how devastating accumulated economic mismanagement can be. During the 1960s and 1970s, the CFA Franc was pegged to a relatively weak currency (the French Franc) which was depreciated, and frequently devalued, vis-a-vis the US dollar for most of the period. The depreciation of the FF during the 1970s appeared to have successfully counterbalanced the worsening of the CFA terms of trade, especially after 1973, which helped maintain real stability of the zone (Elbadawi, (1991)).[2] Hence, the atmosphere of currency convertibility, relative

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1 Overseas Development Institute Briefing Paper, July 1990.

[2] For the role of real exchange rate stability in stemming uncertainty and enhancing investment and growth, especially for exports, see Caballero and Corbo (1989), and Faini and de Melo (1990).

monetary discipline, and the exogenous depreciation of the FF fostered stability and averted serious overvaluation. These factors have been credited with the steady and positive economic performance of the zone (especially during the turbulent period of the late 1970s).

As early as the second half of the 1980s, the CFA franc zone started to show signs of economic difficulties as the accumulated effects of laxity in the implementation of the zone fiscal/monetary regime began to materialize, especially for the bigger countries.[3] The problems of the zone, however, did not assume crisis proportions until after 1985 when the FF started to appreciate vis-a-vis the US dollar in the face of deteriorating terms of trade for the CFA zone. This period also witnessed the onset of considerable real depreciation in several sub-Saharan African countries (including key export-competitors of the zone in West Africa). This acted like an added adverse exogenous shock to the economies of the zone.[4] With nominal devaluation not available as an instrument of policy, adjustment by deflating the economy has so far proven to be slow, costly, and politically difficult.

The controversy over the choice between maintaining a fixed parity cum an automatic fiscal/monetary discipline with convertibility as in the CFA zone and adhering to more flexible exchange rate regimes justifies a closer look at the economic consequences of each regime during both tranquil and turbulent periods, which also reflects other changing conditions such as the new role of France as a member in the European Monetary System. This paper analyzes economic performance of the CFA zone relative to other comparators using a modified-control-group approach (see Corbo and Rojas (1990), Heckman and Hotz (1989) and references cited therein).

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[3] The larger economies of the zone such as Cote d'Ivoire, Senegal, and Cameroon which dominate the process of credit distribution tended to have the most inflationary monetary policies and hence the most appreciated exchange rate.

[4] Although, the small country assumption tells us that these developments should not be consequential.

The modified-control-group approach is superior to other methods such as the before-and-after and the control-group approaches, because in assessing the marginal contribution of the effect of interest (in our case participation in the CFA zone) it controls for the impact of initial conditions as well as changing exogenous world environment and policy stance.

The paper will compare performance of the CFA members with a sample of other sub-Saharan African countries (SSA) and a set of similar low-income developing countries, including other SSA, which for simplicity we will label as (LIDC). Initially, we test for the two equally plausible assumptions concerning the zone membership decision. The first is based on the notion that participation decision in the zone is a random choice (see, for example, Devarajan and de Melo (1990)). The rational for the first assumption is that given the similar historical, cultural, and economic background of the CFA member countries to those of LIDC, and other SSA countries in particular; it is likely that in the absence of the CFA arrangement, the economic performance of the three groups of countries could have been more or less analogous to each other.

And the second assumption is held by those who view the zone participation decision as a nonrandom choice, endogenous to the economic performance and policy stance. On the basis of this assumption, it is likely that the chances for continued participation in the zone will be enhanced by expectation of improved economic performance brought about by currency convertibility and monetary and exchange rate stability or the possibility for debt forgiveness and other favorable arrangements with France.[5] In general, the close historical, cultural, and economic ties that bond France with the CFA members tend to set them apart

[5] The CFA zone is made up of two separate unions: the West African Monetary Union (UMOA) and the countries which have formed the Bank of Central African States (BEAC). The former includes Benin, Burkina Faso, Cote d'Ivoire, Mali, Niger, Senegal, and Togo and the latter consists of Cameroon, Central African Republic, Chad, Congo, Equatorial Guinea, and Gabon. The union membership has gone through a series of changes in the past twenty years as countries exercised some freedom to join or to leave the two central banks (Honohan, 1989). For example, Guinea abandoned the French franc on independence. Mauritania joined UMOA and left in 1973 and Madagascar stayed with the French Franc until 1973, but never joined either of the two unions. Mali left the zone after independence, only to rejoin it in 1967, and to become a member of the UMOA in 1984. Togo was not a founder member of UMOA but joined after the change of government in 1963. In 1985 Equatorial Guinea became both the smallest member of the CFA zone and the first member not to have been a former French colony.

from the rest of sub-Saharan Africa. In that case, to assume that the CFA members are selected randomly is untenable. Failure to account for this "selectivity bias" will lead to biased and inconsistent statistical results. In fact, these unique features put the CFA members in a distinguished position vis-a-vis the rest of other developing countries. The likelihood of abandoning zone participation will increase if these features are shown to impede growth and adjustment.

Given the difficulty involved in determining *a priori* whether or not zone participation decision were random, we have decided to formally run the Hausman (1978)- type specification test for "selectivity bias" for each indicator Depending on the results of this test we were, then, able to decide whether to represent membership effect by an actual or instrumented dummy, in the subsequent modified-control-group equation.

In the present paper, we allow also for the fact that economic performance of the West African Monetary Union (UMOA) may have been different from that of the countries of the Bank of the Central African States (BEAC), as policies differed in the two unions during the period under consideration (Elbadawi (1991)).[6]

Section II of the paper will be devoted to a detailed analysis of the economic conditions - in terms of economic performance and policy stance - that prevailed during the period 1970-89. The analysis is made on the basis of simple weighted averages. An analysis of the averages, we acknowledge, neglects the essence and magnitude of the internal and external shocks that eroded the economic prospects of our sample countries during much of the 1980s. Therefore, in Section III, we present a model for estimating marginal contribution of the CFA zone effect, while controlling for initial conditions and changing exogenous non-membership factors. In addition, we consider explicitly policy reaction

[6] This distinction, however, will not be made in the modified-control-group analysis.

functions and correct for the "sample selectivity" bias that may result from the non-randomness of the zone membership.

After making an assessment of the validity of the maintained identification conditions concerning the membership decision, in Section IV we estimate the marginal contribution of the CFA zone on the economic performance of the sample countries and use the results to reassess costs and benefits of the zone participation. The decision on possible parity changes as a complement to monetary and fiscal discipline - which have, for a long time, been a salient feature of the zone - will be examined in Part V.

II. AN OVERVIEW OF ECONOMIC PERFORMANCE IN THE CFA ZONE

In this section we compare the evolution of the performance indicators for the CFA zone with two groups: other SSA countries and LIDC. Except for Gabon, the rest of the CFA members fall into the categories of low - to lower-middle-income countries. The per capita GNP of these countries was estimated below $1500 in 1982. Using this figure as an upper bound, we selected the two groups. As for the group of comparators, it is obvious that the group of other SSA countries is the most relevant group for assessing economic performance in the CFA zone, given its similarity to the CFA members in terms of socio-economic structure, initial conditions, and exogenous world environment.[7]

(II.1) Long-Run Comparison: 1982-89 Versus 1973-81: Table 1 presents averages of the selected performance indicators for the CFA zone and other comparators during the two sub-periods 1973-81 and 1982-89. It shows that the output growth rate slowed much faster in the CFA zone compared to that of LIDC while the gap between the CFA members and the neighboring SSA countries narrowed drastically in recent years. The declining trend was steeper for the BEAC than UMOA as the output growth rate in the latter dwindled by more than 6 percent between the two periods, from an average of over 8 percent per annum in the 1970s to 2 percent in the 1980s[8].

The erosion of competitiveness in the zone is more pronounced in terms of sagging export performance. As can be seen from Table 1, the upward trend of the export growth reversed for the zone in recent years as the average annual growth rate of exports fell from 7 percent in the 1970s to a negative 0.4 percent in the 1980s. While the poor performance of the zone may be attributed to the serious

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[7] See Annex (I) for the complete listing of the countries in each group.

[8] Note that BEAC is dominated by oil producing countries which are subject to wider cyclical fluctuations of exports and output. For instance, the index of average crude price in the world market (1985=100) has fluctuated widely between 1986 and the first quarter of 1991: the index declined to 51.2 in 1986, increased to 65.9 in 1987, again declined to 52.5 in 1988, rose to 63.7 in 1989, rose again to 81.7 in 1990, and declined to 68.2 in the first quarter of 1991.

drought conditions of 1982-84 and in more recent years to deterioration of commodity export prices in some UMOA countries, the loss of competitiveness is quite blatant, as both the other SSA countries and LIDC were able to register positive export growth rates in the 1980s, respectively by 2.5 percent and 8.9 percent.

It has been argued that output growth in SSA was sluggish despite high investment, particularly through heavy borrowing from abroad. This is attributed to the low level of capacity utilization as opposed to capacity growth, driven by investment (Ndulu, 1990).[9] Table 1 shows that the countries outside SSA in general fared better in terms of output growth rates for a given level of investment. During the 1980s the share of investment dropped on the average to about 21 percent of GDP per year in the CFA zone and the average annual output growth rate was 1.6 percent. Similarly, the investment ratio declined to 15.7 percent of the GDP in the SSA and the GDP growth rate was 1.3 percent. In the same period, the LIDC was able to increase output by more than 6 percent per annum for an investment share to GDP of around 27 percent. This is equivalent, on the average, to a GDP growth rate of 0.08 percent for every dollar invested out of income in the SSA countries, including the CFA zone, as compared with 0.23 percent in the LIDC which implies a lower efficiency of investment in sub-Saharan Africa relative to that of other parts of the world.

It is difficult to mobilize domestic resources when per capita income is falling. Between the 1970s and 1980s, the CFA GDP growth rate declined by approximately three times. The impact on savings was more severe for the UMOA, as the average annual share of domestic savings to GDP dropped from over 16 percent in the 1970s to about of 12 percent in the 1980s. The corresponding decline in such shares for the SSA was from more than 20 percent per year to about an annual average of 12 percent in the two periods As a result, all

[9] This is because of the compression of imports required to address balance of payments difficulties, and imported intermediate goods are imperfect substitutes for domestically produced goods in most of the economies of SSA.

African countries had to resort to more external borrowing which resulted in subsequent debt overhang in the 1980s. The percentage shares of the debt to GDP increased, on the average, to almost 72 percent for the CFA members, to about 58 percent per year for other SSA, as compared with around 29 percent for the LIDC. Only BEAC was able to increase domestic savings, partly because of an increase in the petroleum profit tax and hence relatively less reliance on the external borrowing.

We have already seen the deterioration of the economic situation of the CFA members as reflected by the lower output and export growth rates, lower investment and savings ratios to GDP, and higher debt to GDP ratio as compared with the SSA and LIDC. To what extent were the policy instruments adopted by the CFA governments responsible for the worsening of the zone economies? In this part we will focus on the fiscal and monetary instruments and their implications for the government budget deficit and inflation as well as other policy indicators for the zone in comparison to those of comparators.

Table 2 depicts changes in the resource balance as a percentage of GDP, domestic credit expansion, government deficit, inflation, and the real effective exchange rate for the two sample periods. The table shows an improvement of the resource balance for the zone in the 1980s as compared with the other two groups of countries, particularly with BEAC being able to register a positive resource balance relative to GDP by more than 3 percent. With exports declining in recent years, improvement in resource balance for the CFA zone reflects the fact that imports had to be drastically curtailed. As we have argued above, this may have adversely affected output growth rates in the 1980s, by reducing capacity utilization.

One important aspect of zone membership has been adoption of the stringent rules of fiscal and monetary disciplines which tended to enhance credibility by providing a buffer for resisting pressures on increased monetary financing of

fiscal deficits. Table 2 shows that these rules, while being effective in inhibiting the rate of domestic credit expansion, have become less pinching in recent years because of (a) the unrestricted access to credit for crop financing which was no longer self-liquidating due to the fall in commodity prices and the subsequent attendant losses of the marketing boards, thereby undermining the central bank credit controls, (b) the cumbersome decision-making process for setting the interest rate and using it as an effective monetary policy instrument, and (c) a decline in the quality of the commercial banks' loans when business conditions deteriorated as a result of repeated droughts which were subsequently compounded by deficiencies in bank management, the nonobservance of normal banking procedures, and the extension of credits without proper collateral.

Notwithstanding the increasing demand pressure for central bank refinancing of the commercial banks' meager portfolios and the pressing need for monetary financing of the government deficit, the two central banks appear to have opted for their commitment to financial stability at the expense of their responsibilities as lenders of last resorts. As a result, the monetary rules have been geared to policies enabling the two central banks to protect their external reserve positions over the longer-term. Consequently, in the 1980s, the annual credit expansion declined to 7.6 percent from about 27 percent in the 1970s. Meanwhile, the same rates for the SSA and LIDC increased respectively by 24 percent and about 38 percent in the 1980s.

While the rules of monetary policy were successful in curbing the consumer price inflation, the commitment to fiscal discipline has not been equally strong in the CFA zone, leading to a one percent increase in the government deficit to GDP ratio between the 1970s and the 1980s. Given the absence of seigniorage revenue available to the fiscal authorities as well as the presence of inertia for capital spending together with the inability to reduce current expenditures, the governments of the CFA zone were forced to resort to external financing and

to exceptional financing such as successive debt reschedulings and accumulation of payment arrears on both domestic and foreign debts.

On the contrary, member countries of the CFA zone, as was expected, have managed to maintain relatively low rate of increases in domestic prices than the other two groups of comparators in the past two decades. The median of the zone annual inflation rate declined from more than 12 percent in the 1970s to around 4 percent in the 1980s whereas inflation in the group of SSA countries was above 17 percent and that of LIDC was above 12 percent per annum during the years 1982-89.

What caused the fiscal expansion to have little impact on inflation in the CFA zone? Honohan (1990b) uses a principal component analysis to determine the zone's success in achieving low rate of consumer price inflation. His results show that there is a slow but reliable convergence of consumer price inflation in the CFA to French inflation. Also, he maintains that a stable nominal exchange rate appears to have resulted in low inflation for the CFA members. Furthermore, Honohan asserts that the openness of the CFA economies prevents strong linkages between fiscal financing through credit expansions and monetary growth. If there is too much credit expansion, he argues, it will simply leak out into imports or capital movements within the zone and the "core" member, France. If there is too little, it will be made up by capital inflows. One may deduce that the fiscal expansion has little impact on the stock of money, and hence inflation.

A recent study by the IMF shows that, in fact, inflation rates for the zone members have moved in line with the rate of inflation in France, albeit within BEAC grouping the rates being generally slightly lower than in France. However, the zone's largest countries such as Cote d'Ivoire and Cameroon encountered difficulties in matching the improvement in inflation performance from the mid-1980s onward. There seems to be a general consensus as to the success of the CFA

members in containing inflation by a variety of policy measures, most notably by curbing aggregate demand in the process of correcting external imbalances which served to exert downward pressure on domestic prices.

In comparison to the non-CFA sample countries, zone economies have enjoyed a relatively more stable real effective exchange rate (REER) since 1970. From Table 2, it is clear that variations in the REER were much slower for the zone members than the groups of comparators during the last two decades. On the contrary, the SSA groupings pursued more rigorous adjustment policies in the 1980s, including deep devaluations - not easily detectable in the CFA zone - which are reflected in a much higher REER index. During this period, the average annual REER index increased by more than 10 percent for the group of SSA countries from about 97 in the 1970s to 107 in the 1980s (implying real depreciation) whereas the index declined to 92.4 in the CFA zone from 93.4 in the 1970s; all calculated at the 1980 base year. Over the same period, the REER index dropped by more than 3 percent for the group of LIDC. To a large extent, the devaluation of nominal exchange rates by the SSA countries outside the CFA zone appears to have been an appropriate response to correct and reverse the earlier dramatic overvaluations experienced by many of these countries (e.g., Ghana, The Gambia, Nigeria, Zaire), especially during the period 1973-83.

The flexibility of the nominal exchange rate as opposed to the fixed parity raises the issue of competitiveness, in general, and nominal versus real stability, in particular, which has been discussed elsewhere (see, for example, de Macedo (1984), Devarajan and de Melo (1987), Guillaumont and Plane (1988), and Honohan (1990b)) and, therefore, will not be explored here. Suffice to mention that the issue seems to be unresolved in the literature since other factors such as macroeconomic environment, realization of efficiency gains, downward flexibilities of nominal prices and factor costs, and exogenous shocks - just to

name a few - appear to play crucial roles in that respect.[10]

During the 1980s, much of the currency devaluation by the developing countries was a direct response to the adverse external environment characterized by wide swings in the terms of trade and the soaring international interest rate. Table 3 shows the magnitude of external and internal shocks for the three groups of countries. The comparison is made for the three periods: 1982-85 versus 1973-81, 1986-89 with respect to 1982-85, and 1982-89 versus 1973-81. In the first period, the combined terms of trade and interest rate shock was much more severe for UMOA than any other group while the SSA countries experienced the hardest blow in terms of internal shock (narrowly defined and proxied by the index of food production, see notes to Table 3). At the same time, LIDC was adversely affected by a rapid terms of trade deterioration and high interest payments on external debt. The magnitude of the total external shock for this group was calculated as -3.4 percent, close to that for other SSA at -3.3, while CFA sustained a small -0.8 aggregate external shock.

In the second period, the terms of trade situation worsened for the BEAC countries primarily due to the stagnating global petroleum market and falling oil prices in the second half of the 1980s. As a result, the CFA countries were hard hit by the external shock, despite a less severe interest rate shock.[11]

Period 3 compares the long-term evolution of the shock indicators. An analysis of this period shows that the impact of the total external shock was about two times more severe for UMOA than other comparators. It shows that during the 1980s the CFA countries were more traumatized by the worsening global environment than their comparators. Meanwhile, the impact of internal shock was

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[10] One example in that respect is Honohan (1990b) who asserts that the short-run elasticity of non-agricultural export supply is low and agricultural producer prices are mostly administered and, therefore, not directly affected by devaluation.

[11] Note that the calculation of the real interest rate shock is based on actual debt servicing which reflects accumulation of arrears in the late 1980s by many of the developing countries.

Table 1: A Long-Term Comparison of Performance Indicators
(GDP Weighted, 1970s and 1980s) /1/, /2/

	Average 1973-81 (1)	Average 1982-89 (2)	%Increase (+) Decrease (-) (2) - (1)
	Average Annual Real GDP Growth Rate (Percent)		
CFA (11)	5.7	1.6	4.1
UMOA (7)	4.0	1.4	2.6
BEAC (4)	8.2	2.0	-6.2
Others			
SSA (18)	2.8	1.3	-1.5
LIDC (25)	5.5	6.2	0.7
	Average Annual Growth Rate of Real Exports (percent)		
CFA	7.0	-0.4	-7.4
UMOA	5.1	-0.0	-5.1
BEAC	9.9	-1.0	-10.9
Others			
SSA	1.2	2.5	1.3
LIDC	7.6	8.9	1.3
	Investment/GDP Ratio (Constant Prices)		
CFA	28.5	21.4	-7.1
UMOA	25.5	16.3	-9.0
BEAC	33.0	29.1	-3.9
Others			
SSA	28.0	15.7	-12.3
LIDC	25.7	27.1	1.4
	Domestic Savings/GDP Ratio (Constant Prices)		
CFA	23.0	20.5	-2.5
UMOA	16.5	11.6	-4.9
BEAC	32.9	34.1	1.2
Others			
SSA	20.9	11.7	-9.2
LIDC	17.9	15.2	-2.7
	External Debt/GDP Ratio (Current Prices) /a/		
CFA	35.9 (9.9)	71.9 (24.2)	36.0 (14.3)
UMOA	35.6 (10.3)	92.0 (27.6)	56.4 (17.3)
BEAC	36.2 (9.5)	51.8 (20.9)	15.6 (11.4)
Others			
SSA	15.0 (11.4)	58.3 (29.7)	43.3 (18.3)
LIDC	16.3 (21.1)	28.9 (33.9)	12.6 (12.8)

Sources: Andrex database, CECMG, and CECTP, World Bank
Notes: (1) Number of countries in parenthesis (2) Missing data for some countries for some years. /a/ Debt service ratios in parenthesis.

Table 2: A LONG-TERM COMPARISON OF POLICY INDICATORS
(GDP Weighted, 1970s and 1980s) /1/, /2/

	Average 1973-81 (1)	Average 1982-89 (2)	% Increase (+) Decrease (-) (2) - (1)
		Resource Balance as Percentage of GDP (Percent)	
CFA (11)	-4.2	-1.0	3.2
UMOA (7)	-6.6	-3.7	2.9
BEAC (4)	-0.4	3.1	3.5
Others			
SSA (18)	0.2	-1.3	- 1.5
LIDC (25)	-1.7	-2.1	-0.4
		Domestic Credit Expansion (percent)	
CFA	26.7	7.6	-19.1
UMOA	28.4	3.4	-25.0
BEAC	25.1	11.8	-12.7
Others			
SSA	11.5	24.0	35.5
LIDC	31.0	37.7	6.7
		Government Deficit GDP Ratio (Percent)	
CFA	5.2	6.2	1.0
UMOA	8.0	7.1	-0.9
BEAC	2.4	5.4	3.0
Others			
SSA	5.5	6.9	1.4
LIDC	3.2	4.5	1.3
		Median of Annual Inflation (Percent)	
CFA	11.6	4.1	-7.5
UMOA	11.1	3.8	-7.3
BEAC	11.7	5.7	-6.0
Others			
SSA	14.0	17.3	3.3
LIDC	13.5	12.3	-1.2
		Real Effective Exchange Rate (1980=100) /a/	
CFA	93.4(8.5)	92.4(7.7)	-1.1(-0.8)
UMOA	94.8(8.2)	88.5(8.8)	-6.6(0.6)
BEAC	92.1(8.8)	96.3(6.6)	4.6(-2.2)
Others			
SSA	96.8(15.7)	107.0(28.9)	10.5(13.2)
LIDC	108.4(11.3)	104.8(17.8)	-3.3(6.5)

Sources: Andrex database, CECMG, and CECTP, World Bank and IFS database
Notes: (1) Number of countries in parenthesis, (2) Missing data for some countries for some years.
/a/ Variability of REER in Parenthesis.

Table 3: External and Internal Shocks

	1982-85 with respect to 1973-81				1986-89 with respect to 1982-85				1982-89 With Respect to 1973-81			
	Terms of Trade	Real Interest Rate	Total External Shock	Internal Shock	Terms of Trade	Real Interest Rate	Total External Shock	Internal Shock	Terms of Trade	Real Interest Rate	Total External Shock	Internal Shock
CFA (11)	1.8	-2.7	-0.8	-4.6	-5.9	0.3	-5.6	0.5	-2.7	-2.6	-5.3	-4.3
UMOA (7)	-3.4	-2.6	-6.0	-2.0	-2.5	-0.0	-2.5	4.5	-3.8	-2.7	-6.5	-0.1
BEAC (4)	7.0	-2.7	4.3	-7.2	-9.3	0.8	-8.6	-3.6	-1.6	-2.5	-4.1	-8.6
Others												
SSA (18)	-2.0	-1.3	-3.3	-7.7	0.6	-0.4	0.2	-1.1	-1.9	-1.5	-3.4	-8.2
LIDC (26)	-1.7	-1.7	-3.4	1.9	-0.7	0.2	-0.5	1.8	-2.1	-1.6	-3.7	2.7

Source: World Bank, Andrex database.
Note: The total effects of the external shock as percentage of GDP is the sum of the terms of trade and the real interest rate effects. The interest rate effect in calculated as -(r-rbase)*(debt/GDP)beg, where r is the real interest rate computed as (i-dp/p)/(1+dp/p); rbase is the average real interest rate of periods 1973-81 and 1982-85; i is the ratio of the public and private interest payments to total debt; and dp/p is the "world inflation" proxied by the change in the US GNP deflator, and the (debt/GDP)beg is the ratio of debt to GDP of the year preceding the beginning of the end period.
The terms of trade effect is calculated as [(Px/Pxbase)-1]*(X/GDP)beg-[(Pm/Pmbase)-1]*(M/GDP)beg, where Px and Pm are the average export and import price indices deflated by the US GDP deflator, respectively; Pxbase and Pmbase are the average price indices of the base period; X and M are exports of GNFS and imports of GNFS; and (X/GDP)beg and (M/GDP)beg are the ratios of X and M to GDP respectively at the year preceding the beginning of the end period.
The internal shock is proxied by the percentage change in the index of per capita domestic food production in 1980 prices, calculated as [(food(t)/food(t-1))-1]*100, where t is the period averages.
May 22, 1991

the highest for the SSA countries as the index of per capita food production for this group was more than 8 percent lower in the 1980s as compared with the 1970s.

(II.2) A Closer Look at 1980s: 1986-89 Versus 1982-85

The weakening competitive position of the CFA zone was aggravated in the second half of the 1980s. Moreover, a comparison of the two sub-periods 1 and 2 in Table 3 has shown that each group of countries was subject to external and internal shocks of varying degrees. For example, in 1982-85, the CFA zone suffered less than their counterparts in terms of the external shock but less so in terms of internal shock when compared to the SSA group. On the contrary, the magnitude of the external shock was much more severe for the former group than the SSA countries during 1986-89. The non-homogeneity of the 1980s decade would, therefore, justify a close scrutiny of the situation. For that reason, we divide the period 1982-89 into two sub-periods: 1982-85 and 1986-89. The results are summarized in Tables 4 and 5. In the second half of the 1980s, the group of comparators responded to external shocks by adjusting their economies through a series of macroeconomic adjustment programs, most notably by aligning their nominal exchange rates. Consequently, in these countries the output and exports grew more rapidly and the resource balance situation improved faster than those of the CFA members. In addition, by bringing down the fiscal deficits, the groups of comparators were able to improve their domestic savings situation.

During the 1980s, sub-Saharan African countries, including the CFA zone, borrowed heavily from abroad. The ratios of debt to GDP for these countries increased respectively by more than 16 percent and 51 percent for the CFA and other SSA between the two periods 1982-85 and 1986-89. The accumulation of external debt which accompanied a substantial worsening of the terms of trade resulted in increased debt servicing for the CFA and non-CFA countries of sub-Saharan Africa in the late 1980s. In that respect, UMOA was the most highly indebted sub-group with an average debt to GDP ratio of 94 percent and a debt

service ratio of about 42 percent.

Gross domestic investment as a percentage of GDP plunged at a slower pace for the group of comparators than that of the CFA zone as a whole, albeit with UMOA being an exception in that regard. Moreover, the comparators achieved considerable real depreciation, particularly SSA countries which depreciated by more than 61 percent between the two periods. It should be noted that while the performance of UMOA was still sluggish over the second half of the 1980s, the dismal performance of the CFA zone during the period was more attributable to the gloomy economic situation of the BEAC oil producing economies as well as the larger countries of UMOA such as Cote d'Ivoire.

Similar to the decade of the 1970s, the rate of domestic inflation in the CFA zone remained low, at about 1 percent per year during the late 1980s, relative to the high inflation rates experienced by the two groups of comparators. The control over the rate of domestic credit expansion by the CFA two central banks appears to have played a major role for such a low rate of inflation. However, the zone's fiscal efforts were not successful, as the ratios of the government deficit to GDP remained relatively high, around 8 percent per year during the period 1986-89, in comparison to the similar ratios for the SSA and LIDC, being respectively about 7 percent and 5 percent.

To recapitulate: the sluggish performance of the CFA countries during the 1980s and the erosion in the zone's competitiveness, have been the subject of much debate in recent years. Opponents of the fixed parity see the issue in terms of an inappropriately valued currency that impedes growth and adjustment. According to this group, during the late 1980s the persistently overvalued exchange rate resulted in a drastic curtailment of public expenditure and particularly investment in the CFA zone (Devarajan and de Melo, 1990). A change in the fixed parity, they argue, would be the most efficient way of restoring competitiveness.

The proponents of the fixed parity, on the other hand, state that participation in the zone fosters growth because the fixed exchange rate - as a nominal anchor - together with guaranteed convertibility of the CFA Franc would lead to an stable investment climate for investors, while adherence to the rules of fiscal and monetary discipline reduces the need for adjustment through currency devaluation. They argue that a devaluation can be risky because to correct imbalances a series of devaluations may be required. This will fuel inflationary expectations and capital flight, which will in turn contribute to a new real appreciation of the currency and most likely a reversal of the policy (Guillaumont and Guillaumont, 1989). In that case, devaluation will become ineffective in terms of having an impact on growth and competitiveness.

In a recent study of the causes, consequences, and cures of rising inflation in four prototypal groups of African countries with varying exchange rate, capital account, and price control regimes, Chhibber (1991) states that the key to price stability lies in avoiding profligate public spending. In addition, an effectively separated monetary and fiscal policy by joining a monetary union such as the CFA franc zone, he maintains, is another way of lowering inflation. However, he warns against the rigidity of a fixed, pegged exchange rate regime in hampering growth and concludes that an open capital account framework with a flexible exchange rate - a la Indonesia-provides the best example of price stability without jeopardizing growth.

In brief, the group of comparators were able to adjust their economies to the adverse external environment by launching a series of corrective exchange rate, fiscal, and monetary policies. The CFA members, on the other hand, did not move quickly to restore their competitive edge, despite the fact that the terms of trade and the interest rate shocks were more severe in the CFA zone than their counterparts in the period 1986-89.

In any case, with the apparent failure of the CFA to fare well with respect

to other comparators - at least over the second half of the 1980s in terms of growth and competitiveness - and with the increasing difficulty of external finance and mounting debt and financial crises, in addition to the decline of investment and savings, the need to restore competitiveness by the CFA zone has become more pressing today than anytime before. Whether or not this will require an alignment of currency depends on the role - if any - that participation in the zone has in the economic decline of the CFA member countries. This issue will be considered in the following two sections.

Table 4: A SHORT-TERM COMPARISON OF PERFORMANCE INDICATORS
(GDP Weighted, 1982-85 and 1986-89) /1/, /2/

	Average 1982-85 (1)	Average 1986-89 (2)	% Increase (+) Decrease (-) (2) - (1)
Average Annual Real GDP Growth Rate (Percent)			
CFA (11)	2.9	0.4	-2.5
UMOA (7)	1.1	1.7	0.6
BEAC (4)	5.6	-1.7	-7.3
Others			
SSA (18)	-0.2	2.8	3.0
LIDC (25)	6.4	5.9	-0.5
Average Annual Growth Rate of Real Exports (percent)			
CFA	3.4	-4.4	-7.8
UMOA	0.0	-0.01	0.0
BEAC	8.6	-11.0	-19.6
Others			
SSA	0.6	4.4	3.8
LIDC	5.6	12.3	6.7
Investment/GDP Ratio (Constant Prices)			
CFA	24.7	17.7	-7.0
UMOA	17.9	14.6	-3.3
BEAC	35.1	22.4	-12.7
Others			
SSA	17.7	13.7	-4.0
LIDC	26.7	27.3	0.6
Domestic Savings/GDP Ratio (Constant Prices)			
CFA	25.6	14.4	-11.2
UMOA	11.7	11.4	-0.3
BEAC	46.9	18.9	-28.0
Others			
SSA	10.9	12.4	1.5
LIDC	24.0	25.0	1.0
External Debt/GDP Ratio (Current Prices) /a/			
CFA	64.7 (20.6)	81.1 (27.8)	16.4 (7.2)
UMOA	90.1 (33.3)	94.0 (41.6)	3.9 (8.3)
BEAC	41.8 (17.2)	61.8 (26.2)	20.0 (9.0)
Others			
SSA	32.8 (26.6)	84.0 (35.1)	51.2 (8.5)
LIDC	25.3 (23.0)	32.4 (27.6)	7.1 (4.6)

Sources: Andrex database, CECMG, and CECTP, World Bank
Notes: (1) Number of countries in parenthesis, (2) Missing data for some countries for some years. /a/ Debt service ratios in parenthesis.

Table 5: A SHORT-TERM COMPARISON OF POLICY INDICATORS
(GDP Weighted, 1970s and 1980s) /1/, /2/

	Average 1982-85 (1)	Average 1986-89 (2)	% Increase (+) Decrease (-) (2) - (1)
Resource Balance as Percentage of GDP (Percent)			
CFA (11)	0.8	-2.7	-3.5
UMOA (7)	-4.6	-2.7	1.9
BEAC (4)	9.0	-2.7	-11.7
Others			
SSA (18)	-2.3	-0.2	2.1
LIDC (25)	-2.4	-1.8	0.6
Domestic Credit Expansion (percent)			
CFA	12.6	2.5	-10.1
UMOA	6.6	0.2	-6.4
BEAC	18.7	4.9	-13.8
Others			
SSA	27.1	20.8	-6.3
LIDC	27.1	28.6	1.5
Government Deficit GDP Ratio (Percent)			
CFA	4.9	7.7	2.8
UMOA	7.4	6.6	-0.8
BEAC	2.5	8.7	6.2
Others			
SSA	7.3	6.6	-0.7
LIDC	4.3	5.0	0.7
Median of Annual Inflation (Percent)			
CFA	9.9	1.2	-8.7
UMOA	5.7	0.8	-4.9
BEAC	10.1	1.3	-8.8
Others			
SSA	15.6	16.6	1.0
LIDC	10.7	12.1	1.4
Real Effective Exchange Rate (1980=100) /a/			
CFA	86.4(3.7)	98.3(5.2)	13.8(40.5)
UMOA	81.0(4.6)	92.3(4.9)	14.0(6.5)
BEAC	91.8(2.9)	104.3(5.5)	13.6(89.7)
Others			
SSA	141.1(25.6)	54.5(37.5)	-61.4(46.5)
LIDC	95.1(10.3)	80.4(10.8)	-15.5(4.9)

Sources: Andrex database, CECMG, and CECTP, World Bank and IFS database
Notes: (1) Number of countries in parenthesis, (2) Missing data for some countries for some years.
/a/ Variability of REER in Parenthesis.

III. Analysis of Country Performance: Modified Control-Group Approach

The above analysis while being useful in providing a view of the facts regarding the differences in economic performance and related exogenous factors and policy stance between CFA and non-CFA member countries; it is not helpful, however, in addressing the main question: can these differences, if any, be attributed to the marginal effects of membership in the zone?

An adequate framework for estimating the marginal contribution of the CFA zone effect should adjust for initial conditions, changing exogenous non-participation factors, in addition, the methodology must explicitly consider policy reactions and hence the endogeniety of policy instruments. More importantly this methodology should allow us for, testing for and correction of, the "sample selectivity" bias that could result from the non-randomness of zone membership,[12] also it should permit an assessment of the validity of the maintained identification conditions regarding the participation decisions needed for identifying membership effect.

The problem of selectivity bias arises in evaluating the impact of economic reform on average economic performance (real growth, say), when the average performance of the CFA countries would differ from that of the non-CFA countries even in the absence of program. Formally, if y_{it}^{*} stands for economic performance of country i at period t in the absence of zone participation, and if d_i is an indicator variable equal to one if i is a CFA country and equal to zero otherwise; then selectivity bias implies the following:

$$E(y_{it}^{*} \mid d_i = 1) \neq E(y_{it}^{*} \mid d_i = 0) .$$

The above interpretation of the selection bias problem borrows from the

[12] As we mentioned in the introduction to the paper, it is entirely possible that in the case of CFA membership such methodology we develop in this paper allows us to formally test for endogeniety of membership effect.

literature on the impact of social programs.[13] The strand of the literature that exploits non-experimental data (as in our case) has produced rather non-uniform predictions regarding the effectiveness of social programs. In a recent paper analyzing the effectiveness of training programs, Heckman and Hotz (1989) argue that "evidence of striking differences in estimates produced from alternative non-experimental estimators merely confirms the existence of systemic differences between trainees and comparison group members in characteristics affecting outcome measures", and the different non-experimental estimators make different assumptions about the distribution of these differences. Based on this Heckman and Hotz (1989) then go on to develop a family of models that resolve the selection bias problem under varying identification conditions. They also develop formal tests for choosing among alternative non-experimental estimators, subject to data availability.

In what follows we will use the Heckman and Hotz (1989) paradigm to develop two types of estimators that permit identification of CFA participation effect under two different sets of assumptions. Our model also draws on Rojas and Serven (forthcoming) which incorporates a policy reaction function in the standard selection bias problem studied in the social program literature.

We start by stating the basic specification for the macro economic target variable in equation (1) below.

$$y_{it} = \alpha_0 + \hat{X}_{it}'\alpha_1 + W_{it}'\alpha_2 + \alpha_3 d_i + e_{it} \qquad (1A)$$

where $\hat{X}_{it}$ is a κ -element vector of the macroeconomic policy instruments that would be observed by country i in period t under the circumstances of non-membership posture, W_{it} is an M-element random vector of the world variables not related to the membership and relevant to country i and period t, d_i is a dummy variable that takes the value of unity if the country is a CFA Zone member

[13] For example Heckman and Hotz (1989) and the literature cited therein

and zero otherwise, the prime (') sign denotes the transpose of a vector, and e_{it} is an iid disturbance shock un-correlated across time and across individual countries.

In equation (1), the target variable y_{it} is a function of (a) the value of the selected policy instruments that would have occurred assuming non-membership (a counterfactual), $\hat{X}_{it}$; (b) a change in selected world economic conditions, W_{it}; (c) the total effects of zone membership, d_i; and (d) unobservable random shocks.

The policy vector x is generated according to the following reaction function:

$$\Delta X_{it} = [Y^d_{it} - Y_{i,t-1}]' \delta_1 + W'_{it} \delta_2 + \delta_3 d_i + \epsilon_{it}, \qquad (2A)$$

and the following identity gives the counterfactuals:

$$\hat{X}_{it} = X_{i,t-1} + (\Delta X_i - \delta_3 d_i) \qquad (2B)$$

where Y^d_{it} is the desired value of the matrix Y_{it} of the individual economic indicators, $y_{it's}$; and ϵ_{it} are random effects as in (1) above, following Rojas and Serven (forthcoming), e_{it} and ϵ_s are allowed to have a non-zero correlation for i = j and t = s, but are assumed uncorrelated in all other cases.

This reaction function reflects policy makers' responses to perceived disequilibria in the target variables. It shows that a change in policy instruments between any two periods is a function of the difference between the desired value of the target variable in the current period and its actual value

in the preceding period--the vector of the coefficients of responsiveness to target disequilibria is δ_i--a change in the world economic environment, whether or not a country is a CFA member reflecting the discipline imposed by the zone on policy stance, and a disturbance term ϵ_{it}. [14]

Equation (2B) is an identity to define the counterfactual, $\hat{X}_{it}$. Note that in the case of non-CFA countries $\hat{X}_{it} = X_{it}$ (because $d_i = 0$).

Since Y^d_{it} is unobservable, we assume that the desired target levels depend on last period policy stance and actual target levels, in addition to current exogenous world environment; this allows us to combine (2A) and (2B) to write an expression for the counterfactuals, $\hat{X}_{it}$, in the following unrestricted reduced form:

$$\hat{X}_{it} = b_0 + W'_{it}\, b_1 + X'_{i,t-1}\, b_2 + Y'_{i,t-1}\, b_3 + \epsilon_{it} \qquad (3)$$

The model is completed by adding a framework describing the decision by countries to participate (or maintain their membership) in the zone. The participation decision can be specified in terms of an index function framework. Let the index, IN_i be a function of both observed (Z_i)--which may include all of the elements in X_i, and unobserved (μ_i) variables and write:

$$IN_i = f(Z_i) + \mu_i \qquad (4)$$

where f(.) is an unspecified function of Z_i. Then the i^{th} country's participation status is given by:

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[14] One potential limitation of this model is that the reaction function can be highly unstable and in the extreme case deriving the counterfactuals becomes insoluble problem (e.g Goldstein and Montiel (1986))

$$d_i = \begin{cases} 1 \text{ if and only if } IN_i > 0 \\ 0 \text{ otherwise} \end{cases} \quad (5)$$

Now abstracting from (4) and (5) for a moment, we use (3) in (1) to obtain the following estimating equation for participation effect:

$$y_t - y_{t-1} = \beta_0 + W_{it}'\beta_1 + X_{i,t-1}'\beta_2 + Y_{i,t-1}'\beta_3$$

$$+ \beta_4 d_i + (e_{it} + \beta_5 e_{it}) \quad (6)$$

The above equation provides the structure that we will combine with the two sets of identification conditions in order to derive the two estimators of the program effect.

A. Non Selection-Bias

This estimator is obtained by adding to equation (6) the assumption that: the conditional expectation of e_{it}'s does not depend on d_i. That is assuming the following condition holds:

$$E(e_{it} \mid d_i, X_{i-1}, W_i) = 0 \quad (7A)$$

For all t, for this model consistent estimates of the impact of program can be obtained by simply estimating equation (6) using OLS where d_i is exogenous.

B. The Modified-Control-Group Estimator

The first assumption we make is that the dependence between e_{it} and d_i arises because of the dependence between μ_i and e_{it}. More formally

$$E(e_{it}|d_i,\ X_{it},\ W_{it}) \neq 0 \quad \text{and}$$

$$E(e_{it}|d_i,\ X_{it},\ W_{it},\ Z_i) \neq 0 \quad \text{but}$$

$$E(e_{it}|d_i,\ X_{it},\ W_{it},\ Z_i) = E(e_{it}|X_{it},\ W_{it},\ Z_i) \tag{7B}$$

This case is referred to by Heckman and Hotz (1989) as "selection on observables".[15]

In addition to condition (7B), this approach requires an assumption giving specific functional specification to the participation status in equation (4).

$$f(Z_i) = Z_i\gamma$$

$$\mu_i \sim iid \quad \text{from the distribution} \quad F(\tilde{\mu}_i) = Pr(\mu_i < \tilde{\mu}_i)$$

$$\text{and} \quad E(\mu_i|Z_i) = 0 \tag{7C}$$

Now assumption (7C) allows us to write:

$$Pr(d_i = 1|Z_i) = E(d_i|Z_i) = 1 - F(-Z_i\gamma) \tag{7C'}$$

The probability statement (7C') provides a basis for estimating (via a probit model <u>ala</u> Corbo and Rojas (1991), for example)[16] an instrument

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[15] Here we don't consider the "selection on unobservables" case which is not very relevant to the problem at hand. See Heckman and Hotz for more details on this.

[16] See also Barrow <u>et al</u> (1981), and Heckman (1979).

$\hat{d}_i = 1 - F(-Z_i\hat{\gamma})$ for d_i. The second step is to estimate equation (6) using OLS with $\hat{d}_i$ (rather than d_i) used as a regressor.

Note that in case (A) the identification condition is much stronger than that of case (B), but in the former case identification of marginal participation effect is possible without the need to specify the decision rule. On the other hand, estimator (B) requires specific functional and distributional specification of the participation decision process, but membership in the Zone is not assumed to be random. In the following section we will estimate both models. In our view, these two estimators should provide an opportunity for assessing the robustness of our results. At any rate, we will formally test the validity of each of assumptions (A) and (B) using a Hausman (1978) type specification test.

IV. Empirical Results

In this section, we estimate the modified-control-group of Section III and use it to analyze the marginal effect of zone participation in economic performance of the CFA relative to (a) other SSA and (b) other SSA and LIDC. The comparison will be made for both the short-run (19869-86 versus 1982-85) and long-run (1982-89 versus 1973-81).

The first issue we settle is the presence (or lack thereof) of selection bias. To decide which of identifications (A) and (B) is valid, we employ a formal Hausman (1978) type specification test where the robust White-heteroskedasticity consistent standard errors were used because of the cross-section nature of our data (see ANNEX II for a full description of the specification test). With the exception of output growth and inflation, we fail to accept the null hypothesis of (no selection bias) for other performance variables such as exports, investment, and savings at any reasonable significance level. This clearly shows that the question of randomness in participation decision is an empirical issue and cannot be assumed *a priori* as in Devarajan and de Melo (1990). Our approach has furnished sufficient ground to believe that the choice concerning zone membership is, at least partially, associated with an expectation of improved economic performance.

Table 6 presents the results of the probit Maximum-likelihood equation for the participation status of the CFA countries. The decision period is 1982-85 during which the movements in and out of the zone reached their highest point. A change in the variable pertains to variations in the period 1982-85 with respect to 1973-81. The main determinants of zone participation are: REER variability, the ratio of exports of GNFS to GDP, deficit to GDP ratio, inflation, terms of trade, change in debt outstanding and disbursed, change in net capital flows, internal and external shocks, and a dummy variable which takes the value of one if the country has a Structural Adjustment Loan (SAL) with the World Bank and zero otherwise. All the coefficients have the appropriate signs

and most are statistically significant.[17] For example, larger fiscal deficits, higher foreign debt, or a more severe external shock would encourage continued zone participation. Similarly, the likelihood for zone participation to be abandoned is increased if a CFA country experiences higher inflation, poor export performance, higher variations of the exchange rate, a deterioration of terms of trade, a severe internal shock, or the possibility of having a SAL program.

In the second stage the fitted value of the dependent variable from the maximum-likelihood probit equation ($\hat{d}_i$) is used as an instrument in target equation (7) except for the cases of output growth and inflation for which no evidence of selection bias was detected and the actual dummy (d_i) was used. The estimation results showing the marginal effect of zone participation on the macroeconomic outcomes are summarized in Table 7. Tables 1-4 of Annex III provide the detailed individual regression results. The comparison is made for the two periods: 1986-89 versus 1982-85 and 1982-89 with respect to 1973-81.

All variables are expressed in constant 1980 prices to avert the deflating problems, particularly for countries with high inflation rates. Moreover, because of our small sample size, substantially insignificant effects in the cross-section comparison between the CFA zone and the SSA and LIDC countries have been eliminated from the final regression results.

After controlling for the effects of external and internal shocks, fiscal deficits, variability of the REER and other initial conditions, and policy variables; our regression results for the marginal effect of zone participation on macroeconomic performance confirm the erosion of competitiveness of the CFA members in comparison with the two groups of comparators in the short-run. As can be seen from Table 7, zone participation has cost the CFA countries a great deal in terms of slow down in output growth as well as their export, investment, and saving situations.

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[17] The external shock and the export ratio, however, are only marginally significant.

Accordingly, the marginal effect of zone participation on output has been a 2.5 percent decline of the annual average GDP growth rate for the CFA countries, between the two periods 1986-89 and 1982-85, when compared with that of other SSA. Similarly, when compared with LIDC, such an effect has been, once again, mirrored in a lower GDP growth rate, by as much as 2.2 percent.

The declining trend of the zone's economic growth has recently been aggravated by the sluggish export performance of the CFA countries. The estimation results clearly show that CFA members have lost the competitive upper hand to the comparators, as the ratios of their exports to GDP were respectively 3.7 percent lower when compared with SSA and about 7 percent lower when compared with SSA and LIDC.

A rather astonishing performance outcome of the zone in recent years has been the worsening of the climate for domestic investment and savings, a long time by-product of the zone's fiscal and monetary discipline as well as its low and manageable inflation. From Table 7, the direct effect of zone participation has been a 6.3 percent decline in gross domestic investment to GDP ratio as compared with the SSA countries and a 2.7 percent decline vis-a-vis LIDC (although marginally significant at 9% levels). The zone membership had the most severe and far-reaching implications for domestic savings of the CFA countries. In the period 1986-89, the ratio of savings to GDP for the zone members were around 6 percent lower than their counterparts when compared to the same ratio in the early 1980s.

Nevertheless, zone participation helped the CFA countries register a lower inflation rates in recent years than the two groups of comparators, as these rates were around 14 percent and 36 percent lower, respectively in comparison with SSA and LIDC, albeit the results vis-a-vis the latter group are only marginally significant (at 15% level).

Table 7 shows also the results of the marginal effect of zone participation for a longer term horizon. When the 1980s are compared with the 1970s, the estimation results clearly display the zone's dominance over both groups of comparators in terms of almost all the performance indicators. In other words, zone participation resulted in higher export, investment, and saving ratios to GDP - respectively by about 10 percent, 7 percent, and 12 - relative to the SSA competitors. Moreover, it helped the CFA countries fare much better than LIDC in terms of higher ratios of export, investment, and savings to GDP by about 4 percent, 3 percent, 3 percent, and 6 percent in the 1980s, respectively, although the results for investment are marginally significant (at 17% level). However, the zone failed to distinguish itself from the LIDC group in terms of the GDP growth rate while participation effect accounted for only 1 percent higher as compared to other SSA in that regard. These estimates, however, together with those of the marginal effects on inflation are only marginally significant.

The partial long-run improvement of the zone performance attributed by the model to the marginal effect of zone participation, may be due to the sharp difference between the first and second halves of the 1980s decade and the dominance of the earlier in the average economic performance in the zone over the 1980s decade. On the one hand, the depreciated French Franc (FF) vis-a-vis the US dollar during the early 1980s helped the CFA zone maintain its competitiveness. The zone members, however, lost momentum in the second half of the 1980s with the appreciation of the FF and the disproportionally harsher external shocks they faced. Furthermore, as early as 1984, other comparators, especially the sub-Saharan African countries, undertook decisive economic reforms, including massive devaluations of their exchange rates.

Table 7: Modified Control-Group Estimates of the CFA Zone Participation

A. Short-Term (1986-89 vs 1982-85)	CFA w.r.t. SSA	CFA w.r.t SSA and LIDCs
Change in GDP Growth Rate	-0.025 (1.89)	-0.022 (2.18)
Change in Exports GNFS as % of GDP	-0.037 (1.73)	-0.070 (2.82)
Change in GDI as % of GDP	-0.063 (1.76)	-0.027 (1.69)
Change in GDS as % of GDP	-0.069 (2.36)	-0.063 (3.09)
Change in Inflation	-0.142 (3.11)	-0.357 (1.43)
B. Long-Term (1982-89 vs 1973-81)		
Change in GDP Growth Rate	0.010 (1.33)	-0.010 (0.88)
Change in Exports GNFS as % of GDP	0.096 (2.25)	0.044 (1.81)
Change in GDI as % of GDP	0.070 (2.10)	0.027 (1.39)
Change in GDS as % of GDP	0.118 (2.97)	0.060 (2.04)
Change in Inflation	-0.082 (1.31)	-1.480 (1.76)

Source: Tables I-IV of Annex III.
Notes: t-statistics in parenthesis; GDI = Gross Domestic Investment; GDS = Gross Domestic Savings; w.r.t. = with respect to.
For country listing, see Annex I.

V. CONCLUSION

The paper has shown the costs and benefits of CFA zone participation in two periods: 1980s versus 1970s and 1986-89 versus 1982-85. During the second half of the 1980s the comparative growth performance of the CFA members in the 1970s eroded relative to the non-CFA countries. The extent to which such a shortfall was the direct results of zone participation and, hence the fixed parity of the exchange rate, has been broadly supported in the present paper, using a modified-control-group approach.

Since - as our tests show - zone participation is basically a non-random choice, we have corrected for sample selectivity bias by estimating the country status indicators via a probit model. After controlling for the initial conditions, internal and external shocks, and the policy stance, the paper has shown that the CFA members were outperformed over the short run by the groups of comparators - other SSA, other SSA and LIDC - in terms of output growth as well as export, investment, and savings performance, except for inflation.

Also, we have provided a long-term comparison between the CFA zone and the two groups of comparators. The results of the modified-control-group approach for the long-run are dramatically different from the former. On the one hand, zone participation helped the CFA members fare better than other SSA in terms of all the performance indicators, albeit with only marginally significant improvements for the cases of GDP growth and inflation. More specifically, our results show that the zone's long-run economic stability and -hence credibility - has been instrumental in providing a favorable climate for the domestic investment and savings in comparison with other SSA countries. On the other hand, when compared with other SSA and LIDC combined, the marginal effect of the zone participation appears to have resulted in improved performance of the member countries in all respects except for GDP growth rate, for which the zone has lagged behind the group of comparators.

These results cast doubt on the merits of a zone-type monetary union during a turbulent period such as the one experienced by the zone members in the post-1984 period. Given the sunk costs involved in making changes to the nominal exchange rate, the zone members adhered to the conventional rules of monetary cooperation such as credit controls, budgetary disciplines, and the freedom of capital movements to soften the adverse effects of the exogenous shocks. These rules, while offering some hope for low inflation, appeared not to have been sufficiently forthcoming in bringing the necessary adjustment to the CFA economies at times of severe exogenous shocks -especially when competing neighboring SSA countries and LIDC have achieved considerable real depreciation through changing their nominal exchange rates.

However, as we discussed in Section (II.2) of the present paper, the issue of the short- versus long-run adjustment in the context of zone participation has been very much the center of the debate in recent years. Our estimation results may be seen as a mid-way between the two polar cases in this debate. The results confirm the notion that while the economies tied up to each other via monetary unions may not be flexible enough to adjust sufficiently in the short run to inclement exogenous shocks, it appears that the built-in mechanism of the monetary and fiscal discipline may be suited to confer stability and improved performance in the long run.

Nonetheless, if the latter part of the 1980s is conceived to be a typical turbulent period, then the present paper has shown clearly that a prompt response to unforeseen internal and external shocks would become synonymous - for the CFA members - with adhering to a series of more flexible rules of absorption, let alone alignment of the nominal currency.

ANNEX I: LIST OF THE SAMPLE COUNTRIES

(A) UMOA:

Cote d'Ivoire,	Senegal
Niger	Burkina Faso
Benin	Mali
Togo	

(B) BEAC:

Cameroon	Congo
Central African Rep	Gabon

(C) CFA Zone:

[UMOA + BEAC]

(D) Other SSA Countries:

Burundi	Ethiopia	Ghana
Kenya	Liberia	Madagascar
Malawi	Mauritania	Mauritius
Nigeria	Rwanda	Sierra Leone
Somalia	Sudan	Tanzania
Zaire	Zambia	Zimbabwe

(E) Low Income Developing Countries (LIDC):

Bangladesh	Bolivia	China
Colombia	Dominican Republic	Ecuador
Egypt AR	El Salvador	Guatemala
Haiti	Honduras	India
Indonesia	Jamaica	Myanamar
Morocco	Pakistan	Papua New Guinea
Paraguay	Peru	Philippines
Sri Lanka	Thailand	Turkey
Yemen A.R.		

ANNEX II

HAUSMAN "SELECTIVITY BIAS" TEST

A test for selectivity bias is presented below. It is based on the Hausman (1978) type specification test. Assume the following linear relationship:

$$(A) \qquad Y_i = X_i\beta + d_i\alpha + \epsilon$$

where the variables (d_i) is possibly correlated with ϵ while the X_i are not. Given the matrix of instruments Z_i (which should include X_i), let

$$\hat{d}_i = p_{Z_i} d_i = Z_i(Z_i'Z_i)^{-1}Z_i'd_i$$

and consider the following regression:

$$(B) \qquad Y = X_i\beta + d_i\alpha + \hat{d}_i\gamma + V$$

Now a test for Ho: $\gamma = 0$ (a test for the null hypothesis of no covariation between d_i and ϵ in A) is given by the t-statistics of the coefficient of the instrumented variable $\hat{d}_i$ in the regression equation (B), where the t test is based on the White heteroskedasticity robust standard errors. Accordingly, the null hypothesis of no selection bias is rejected if the t-statistics for γ is statistically significant.

The results of the estimations are presented in the Table below. These

results allow us to reject the null hypothesis in all cases except for the GDP growth rate and inflation.[18] In other words, the estimation results confirm, at least partially, the view that membership in the CFA is not random.

Hausman Specification Test for Membership Decision
(CFA Zone Versus SSA and LIDCs)

	t-Statistics	Significance Level (Percent)
GDP	-0.99	41
Exports/GDP	-4.00	8
GDI/GDP	-4.22	4
GDS/GDP	-5.63	5
Inflation	-0.93	35

[18] The hypothesis for exports, however, is only rejected at a relatively high significance levels.

Table I: Modified Control-Group Estimates of the CFA Zone Participation (w.r.t. SSA, 1986-89 Versus 1982-85)

	Dependent Variables				
	Change in GDP Growth Rate (d_i)	Change in Exports as % of GDP (d_i-hat)	Change in GDI as % of GDP (d_i-hat)	Change in GDS as % of GDP (d_i-hat)	Change in Inflation (d_i)
Regressors					
Constant	4.7202 (0.9752)	6.6521 (0.6989)	8.9745 (2.7983)	7.0411 (3.1736)	33.5831 (1.1448)
GDP_{t-1}	-0.7254 (-4.1628)	0.5319 (1.3708)	.. ..	-0.2999 (-0.9341)	-1.4602 (-1.6524)
Exp/GDP_{t-1}	.. ..	-0.1042 (-1.3319)	0.0679 (0.6980)	0.1423 (1.8457)	0.2235 (1.6959)
GDI/GDP_{t-1}	0.0334 (0.8245)	.. ..	-0.2806 (-2.9569)	.. ..	0.0839 (0.3515)
GDS/GDP_{t-1}	.. ..	0.2908 (2.6461)	-0.1898 (-2.2705)	-0.4540 (-3.4941)	.. ..
DF/GDP_{t-1}	0.0505 (0.3540)	0.5877 (3.1077)	0.1144 (0.4056)	0.3741 (1.8508)	.. ..
$Inflation_{t-1}$	0.0385 (1.5442)	-0.0566 (-0.8652)	-0.0588 (-0.9801)	.. ..	0.6026 (4.2434)
$VARRER_{t-1}$	0.1187 (1.8694)	0.1792 (2.0498)	.. ..	-0.0080 (-0.3148)	.. ..
RER_{t-1}	-0.0128 (-0.5819)	0.0265 (0.7466)	.. ..	.. ..	-0.2630 (-3.1637)
$CHGDCr_{t-1}$	-0.1531 (-3.4477)	-0.1510 (-1.9593)	.. ..	.. ..	.. ..
TOT_{t-1}	0.0115 (0.2413)	-0.0523 (-0.5277)	.. ..	.. ..	-0.1446 (-0.4527)
$ChgRes_{t-1}$	-0.0142 (-0.1790)	0.7799 (3.2743)	-0.3418 (-2.1941)	0.5083 (2.9010)	0.0318 (0.1834)
$ChgDOD_{t-1}$	0.0103 (0.6730)	-0.0325 (-1.0097)	0.0655 (2.0667)	0.0687 (2.4028)	.. ..
Int'l Shock	0.0273 (0.2413)	-0.3179 (-2.6155)	0.1223 (0.8719)	0.0781 (0.7744)	.. ..
Ext'l Shock	0.2850 (3.3038)	0.7327 (2.9868)	.. ..	0.2487 (1.3471)	-0.1821 (-0.4522)
Dummy	-0.0248 (1.8937)*	-0.0373 (-1.7292)**	-0.0626 (-1.7643)***	-0.0686 (-2.3559)****	-0.1415 (-3.1073)*****

* Statistically significant at 8% level.
** Statistically significant at 10% level.
*** Statistically significant at 9% level.
**** Statistically significant at 3% level.
***** Statistically significant at 0.5% level.

ANNEX III Table II

Table II: Modified Control-Group Estimates of the CFA Zone Participation (w.r.t. SSA and LIDC, 1986-89 Versus 1982-85)

	Dependent Variables				
	Change in GDP Growth Rate (d_i)	Change in Exports as % of GDP (d_i-hat)	Change in GDI as % of GDP (d_i-hat)	Change in GDS as % of GDP (d_i-hat)	Change in Inflation (d_i)
Regressors					
Constant	4.8476 (1.4484)	8.8805 (1.6099)	9.2639 (2.0000)	8.5001 (2.7113)	293.1522 (1.1281)
GDP_{t-1}	-0.8022 (-6.6795)	0.0341 (0.1375)	0.2465 (1.0004)	.. ..	-18.3223 (-1.0794)
Exp/GDP_{t-1}	.. ..	0.0399 (0.4319)	.. ..	0.1131 (1.6853)	-2.9544 (-0.9786)
GDI/GDP_{t-1}	0.0371 (0.8759)	.. ..	-0.2682 (-3.8337)	.. ..	5.0934 (0.9612)
GDS/GDP_{t-1}	.. ..	0.1574 (2.4550)	-0.1208 (-2.4303)	-0.4420 (-4.5916)	.. ..
DF/GDP_{t-1}	0.0423 (0.4099)	0.2954 (1.3120)	0.2969 (2.1804)	0.6091 (2.6239)	.. ..
$Inflation_{t-1}$	0.0050 (3.1419)	0.0047 (1.2361)	-0.0002 (-0.1762)	-0.0003 (-0.3281)	-1.0001 (-62.444)
$VARRER_{t-1}$	0.0475 (1.5798)	.. ..	-0.0268 (-1.1494)	-0.0053 (-0.1369)	.. ..
RER_{t-1}	-0.0050 (-0.3060)	0.0053 (0.1763)	.. ..	-0.0062 (-0.2807)	-0.2586 (-0.6521)
$CHGDCr_{t-1}$	-0.0508 (-3.4364)	-0.0236 (-0.6745)	.. ..	.. ..	.. ..
TOT_{t-1}	-0.0102 (-0.2742)	-0.0941 (-1.5440)	-0.0108 (-0.2183)	.. ..	-2.3496 (-1.0515)
$ChgRes_{t-1}$	0.0093 (0.1537)	0.4945 (4.2423)	-0.2382 (-2.5494)	0.5328 (3.3798)	-1.7567 (-0.9221)
$ChgDOD_{t-1}$	0.0132 (1.1297)	.. ..	0.0311 (1.6437)	0.0334 (1.5132)	.. ..
Int'l Shock	0.0945 (1.8157)	-0.0830 (-0.9683)	0.0744 (1.0658)	.. ..	1.4616 (0.9822)
Ext'l Shock	0.1976 (3.1561)	.. ..	0.5332 (4.5262)	0.4267 (3.0859)	0.9130 (0.3005)
Dummy	-0.0215 (-2.1781)*	-0.0699 (-2.8209)**	-0.0267 (-1.6873)***	-0.0629 (-3.0950)****	-0.3565 (-1.4328)*****

* Statistically significant at 3% level.
** Statistically significant at 0.7% level.
*** Statistically significant at 10% level.
**** Statistically significant at 0.4% level.
***** Statistically significant at 0.16% level.

ANNEX III Table III

Table III: Modified Control-Group Estimates of the CFA Zone Participation (w.r.t. SSA, 1982-89 Versus 1973-81)

	Dependent Variables				
	Change in GDP Growth Rate (d_1)	Change in Exports as % of GDP (d_1-hat)	Change in GDI as % of GDP (d_1-hat)	Change in GDS as % of GDP (d_1-hat)	Change in In-flation (d_1)
Regressors					
Constant	-13.1860 (-2.5571)	-32.3670 (1.27439)	-4.1905 (-0.3306)	-55.6159 (-2.3156)	.. ..
GDP_{t-1}	-0.7312 (-3.9992)	.. ..	0.6431 (1.4583)	1.2745 (1.8766)	.. ..
Exp/GDP_{t-1}	.. ..	-0.2877 (-1.3447)	-0.0479 (-0.6287)	0.0382 (0.4598)	0.6099 (1.1875)
GDI/GDP_{t-1}	0.1534 (2.8591)	.. ..	-0.4394 (-3.6383)	.. ..	0.5817 (1.9148)
GDS/GDP_{t-1}	-0.1122 (-3.7242)	.. ..	.. ..	-0.3130 (-3.3489)	-1.2544 (-2.8385)
DF/GDP_{t-1}	.. ..	.. ..	0.2559 (0.8618)	.. ..	.. ..
$Inflation_{t-1}$	0.2212 (2.6354)	0.2642 (0.6971)	0.2490 (1.2684)	0.8076 (3.0785)	1.2629 (2.2438)
$VARRER_{t-1}$	-0.1132 (-1.6524)	-0.1308 (-0.3807)	-0.1568 (-0.9698)	-0.4108 (-1.9776)	-1.1506 (-2.1596)
RER_{t-1}	0.1161 (2.3671)	0.1753 (0.8360)	.. ..	0.4609 (1.9035)	0.5267 (1.4671)
$CHGDCr_{t-1}$	.. ..	.. ..	.. ..	-0.0532 (-0.7121)	0.5457 (1.8020)
TOT_{t-1}	.. ..	0.1101 (0.5767)	0.0696 (0.7457)	.. ..	-0.8172 (-2.2939)
$ChgRes_{t-1}$	-0.1308 (-2.4937)	0.1793 (0.7476)	-0.2342 (-1.3112)	.. ..	-2.1898 (-2.7855)
$ChgDOD_{t-1}$	.. ..	0.0341 (0.4534)	.. ..	.. ..	0.1842 (1.3134)
Int'l Shock	.. ..	-0.1693 (-1.1345)	-0.1927 (-1.3611)	-0.1082 (-0.5779)	-0.7305 (-2.0149)
Ext'l Shock	0.1628 (2.0117)	-0.1828 (-0.2529)	0.6447 (1.9142)	0.8837 (2.2898)	.. ..
Dummy	0.0100 (1.3364)*	0.0963 (2.2487)**	0.0699 (2.0965)***	0.1179 (2.9699)****	-0.0824 (-1.3094)*****

* Statistically significant at 20% level.
** Statistically significant at 4% level.
*** Statistically significant at 5% level.
**** Statistically significant at 0.8% level.
***** Statistically significant at 0.21% level.

ANNEX III TABLE IV

Table VI: Modified Control-Group Estimates of the CFA Zone Participation (w.r.t. SSA and LIDC, 1982-89 Versus 1973-81)

	Dependent Variables				
	Change in GDP Growth Rate (d_i)	Change in Exports as % of GDP (d_i-hat)	Change in GDI as % of GDP (d_i-hat)	Change in GDS as % of GDP (d_i-hat)	Change in Inflation (d_i)
Regressors					
Constant	1.6632 (1.2122)	-11.3763 (-0.7729)	.. ..	-15.2179 (-2.1835)	963.6499 (2.3765)
GDP_{t-1}	-0.8013 (-6.0691)	-0.2621 (-0.5260)	.. ..	0.4944 (1.2023)	-7.5516 (-0.5258)
Exp/GDP_{t-1}	-0.0341 (-0.9989)	-0.3495 (-2.2286)	-0.0933 (-1.8074)	0.0225 (0.3414)	0.8856 (0.3207)
GDI/GDP_{t-1}	0.1039 (2.3469)	.. ..	-0.3023 (-3.9323)	.. ..	-5.1830 (-1.2480)
GDS/GDP_{t-1}	-0.0603 (-1.6399)	0.0807 (0.7563)	.. ..	-0.2003 (-2.5393)	.. ..
DF/GDP_{t-1}	-0.1349 (-1.7084)	0.4444 (0.1511)	.. ..	0.0706 (0.3075)	7.4114 (0.7441)
$Inflation_{t-1}$	-0.0311 (-0.6711)	0.2609 (1.4204)	0.0717 (1.1859)	0.3282 (2.6505)	-1.0829 (-0.2929)
$VARRER_{t-1}$	0.0130 (0.4083)	-0.2463 (-1.5993)	-0.0418 (-0.6844)	-0.2515 (-2.9559)	.. ..
RER_{t-1}	.. ..	0.1082 (1.8532)	0.0699 (3.9676)	0.1134 (2.0525)	-1.4199 (-0.6252)
$CHGDCr_{t-1}$	0.0134 (0.7760)	.. ..	.. ..	0.0220 (0.3328)	8.6662 (3.2293)
TOT_{t-1}	.. ..	0.0157 (0.1650)	.. ..	.. ..	-7.8573 (-3.2959)
$ChgRes_{t-1}$	.. ..	.. ..	-0.2032 (-1.5624)	.. ..	.. ..
$ChgDOD_{t-1}$	-0.0264 (-1.7304)	0.0859 (1.3175)	-0.0324 (-1.0133)	-0.0039 (-0.0774)	0.8642 (0.5285)
Int'l Shock	0.0752 (2.2632)	0.0176 (0.1782)	0.1325 (1.9855)	0.0972 (0.9690)	2.1311 (0.6274)
Ext'l Shock	.. ..	-0.2656 (-1.0440)	0.3582 (2.5141)	0.5542 (2.5320)	-8.1491 (-0.9403)
Dummy	-0.0060 (-0.8809)*	0.0449 (1.8053)**	0.0274 (1.3941)***	0.0595 (2.0399)****	-1.4801 (-1.7557)*****

* Statistically significant at 38% level.
** Statistically significant at 8% level.
*** Statistically significant at 17% level.
**** Statistically significant at 4% level.
***** Statistically significant at 9% level.

Data Sources and Definitions

All data are from Andrex and BESD databases of the World Bank and IMF. The base year for all the constant price series is 1980. The Real Effective Exchange Rate (RER) is based on the IMF definition. It is defined as the nominal effective exchange rate (trade weighted) multiplied by the ratio of the CPI of the country to the WPI of the trade partner country. An increase in the index, therefore, means appreciation. The RER series for the earlier years are from the CECMG and CECTP of the World Bank. The variability of the exchange rate is defined as the ratio of the standard deviation of the RER index over the mean.

The ratios of the performance indicators to GDP in Tables 1 and 3 are in constant prices. Inflation is defined as the percentage changes in the CPI index and in the case of missing years it is proxied by either WPI or the GDP deflators.

The definitions of the external and internal shocks are presented in Tables 3 of the main text. The internal shock is proxied by the percentage changes in the index of food production from one period to the other. As mentioned in notes to Table 3, the interest rate shock is based on the actual debt service payments and as such does not include arrears in interest payments.

The public finance data are from GFS, IMF. The gaps are filled with data provided by CECMG which were also used in the RAL II Report. The series pertain to the consolidated Central Government data exclusive of public enterprise losses and profits.

The estimation results are based on 1980 constant prices. The nomenclatures are defined as follows:

GDP	Gross Domestic Product (in 1980 constant prices, local Currency)
GDI	Gross Domestic Investment (in 1980 constant prices, local currency)

GDS	Gross Domestic Savings (in 1980 constant prices, local currency)
Deficit (Def)	Government deficit (in current prices, local currency)
INFL	Inflation (percentage change in the CPI)
RER	Real Effective Exchange Rate
VARRER	Variability of the REER
TOT	Terms of Trade index in 1980 prices
ChgD	Change in debt outstanding and disbursed
ChgRes	Change in resource balance (Exports GNFS - Imports GNFS)
Ext'l Shock	External Shock (combined interest rate and TOT shocks)
Int'l Shock	Internal Shock (percentage Change in food production index)
DSAL	Dummy variables for countries having SAL programs with the World Bank
(-1)	Pertains to the previous period

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